

### **Remarks**

Claims 2-16 were pending in the application at the time of the Office Action mailed March 24, 2009. In response to this Office Action, claims 2, 6-10 and 14-16 have been amended and claims 3-5 and 11-13 have been cancelled herein. New claims 17-23 have been added. Claims 2, 6-10, and 14-23 are currently pending in the application.

#### **Claim Rejections -- 35 USC § 112**

In the current Office action, claims 2-9, 11 and 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention.

In response to this rejection, the Applicant has amended claims 2, 6-9, 15, and 16 and cancelled claims 3-5 and 11-13 to more clearly define the invention. As such, Applicant believes that the rejections under 35 USC § 112, second paragraph have been overcome. The Examiner's careful consideration is respectfully requested.

#### **Claim Rejections -- 35 USC § 102**

The Examiner rejected claims 2, 4, 10 and 12 under 35 USC 102(b) as being anticipated by U.S. Patent No. 3,847,643 to Hammer (Hammer '643). Claims 4 and 10 have been cancelled. For the reasons below, Applicants submit claims 2 and 12 are patentable over Hammer '643.

Independent claims 2 and 10 are directed to a process for the production of an alkaline glass with a modified glass surface and for modifying the surface of an alkaline glass. Each of the processes comprises the steps of, among others "contacting the surface of the alkaline glass with a contacting volume of an aluminum-chloride compound in a vapor phase, wherein sodium aluminosilicates are formed near the glass surface area." In contrast, Hammer '643 teaches the steps of applying to a glass surface a solution of aluminum-s-butoxide and tetrabutyl titanate, combined with tri-n-butyl antimonite and/or tri-n-butyl borate. Col. 1, ll. 43-48. In Hammer '643 process, the solution is applied to the interior bulb surface (and also to the exterior bulb surface if desired) and then air dried. Col. 1, ll. 51-53.

Hammer '643 does not disclose or even suggest a positive step of "contacting the surface of the alkaline glass with a contacting volume of an aluminum-chloride compound in a vapor

phase” as specified in the present claims 2 and 10. “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” MPEP §2131, quoting *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The Examiner rejected claims 2-3, 6-8, 10, 11, and 14-16 under 35 USC 102(b) as being anticipated by U.S. Patent No. 3,537,848 to Lane (Lane ‘848). Claims 3 and 11 have been cancelled. For the reasons below, Applicants submit claims 2, 6-8, 10, and 14-16 are patentable over Lane ‘848.

Independent claims 2 and 10 are directed to a process for the production of an alkaline glass with a modified glass surface and for modifying the surface of an alkaline glass. Each of the processes comprises the steps of, among others “contacting the surface of the alkaline glass with a contacting volume of an aluminum-chloride compound in a vapor phase, wherein sodium aluminosilicates are formed near the glass surface area.” In contrast, Lane ‘848 teaches a process of treating a xerographic glass binder plate, which has nothing to do with the production of alkaline glasses as claimed in the present invention. Instead, Lane ‘848 teaches providing an electrophotographic plate comprising a photoconductive layer having an inorganic glass material which acts as a binder for photoconductive particles dispersed throughout the glass binder. Col. 3, ll. 32-37.

The present invention, as disclosed in [0003], is directed towards the production of thermally stable surface layers which, with the sodium aluminosilicates formed in the region near the surface, have a resistance to thermally induced reverse sodium diffusion as there are no concentration gradients since the sodium is more firmly bound in an aluminum-modified structure. Therefore, the xerographic glass binder plate of Lane ‘848 relies on the modification of the surface of the binder during photographic reproduction. However, the present invention is directed towards modifying an inert surface.

With regards to claims 8 and 16, which disclose using temperatures “up to 600 K above the transformation temperature of the glass” is neither disclosed nor obvious from the examples of Lane ‘848. Applicants note that Lane ‘848 is dedicated to a “xerographic glass binder plate having a photoconductive layer” and the process described, for example in Examples I and II, is “to cause a chemical reaction characterized by a slight lightening in the color of the glass surface.” Consequently, a person skilled in the art would not extend the temperature to a value

higher than the annealing temperature of the xerographic glass binder plate. Col. 4, line 66 to col. 5, line 56.

In essence, the Examiner has ignored an important feature of the claim defining that "the temperature of the aluminum chloride compound in the vapor phase is... up to 600 K above the transformation temperature of the glass." The transformation temperature of the glass is well known to a person skilled in the art by  $T_g$ , as disclosed in [0006]. The transformation temperature provides the point of sudden change of thermal expansion of the glass as well known by a person skilled in the art. Consequently, in view of Lane '848, at least the subject matter of claims 8 and 16 is considered to allowable subject matter. Reconsideration of the rejection is respectfully requested.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." MPEP §2131, quoting *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). As claims 6-8 are dependent on claim 2 and claims 14-16 are dependent upon claims 10, applicants submit that claims 6-8 and 14-16 are also patentable over Lane '848.

#### Claim Rejections -- 35 USC § 103

The Examiner has also rejected claims 5 and 13 under 35 USC 103(a), as being unpatentable over Hammer '643 and claim 9 as being unpatentable over Lane '848. Applicants submit that the Examiner has not made out a *prima facie* case of obviousness. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). Claims 5 and 13 have been cancelled. Claim 9 is dependent on claim 2. Since claim 2 is allowable, claim 9 should also be allowed.

In view of the above, Applicants respectfully submit that Claims 2, 6-10, 14-18 are in condition for allowance. Prompt consideration of this application and allowance of these claims are requested. If the Examiner should have any questions regarding this application or the amendment, a call to Applicant's attorney would be appreciated. Applicant encourages the Examiner to call their agent, Keith J. Marcinowski, at 330-864-5550 to resolve any additional questions that the Examiner may have after review of the present amendment.

Respectfully submitted,

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